

REMARKS

Applicants will address each of the Examiner's rejections in the order in which they appear in the Office Action.

Claim Rejections – 35 USC §103

Claims 3, 4, and 14

In the Office Action, the Examiner rejects Claims 3, 4, and 14 under 35 USC §103(a) as being unpatentable over O'Brien et al. or Baldo et al., either reference in view of Salbeck et al. This rejection is respectfully traversed.

While Applicants traverse this rejection, in order to advance the prosecution of this application, Applicants are canceling Claims 3, 4 and 14 without prejudice or disclaimer, rendering this rejection moot.

Accordingly, it is respectfully requested that this rejection be withdrawn.

Claims 5-12 and 15-18

The Examiner also rejects Claims 5-12 and 15-18 under 35 USC §103(a) as being unpatentable over O'Brien et al or Baldo et al., either reference in view of Salbeck et al. and further in view of Gushin et al. (US 2002/0121638). In particular, the Examiner appears to be contending that O'Brien or Baldo discloses all the claimed features except spiro-CBP, spiro-NPD, spiro-TAZ or spiro-PBD. The Examiner appears to be relying upon Salbeck for curing the deficiency of O'Brien or Baldo, since the Examiner contends that Salbeck discloses using compounds having a spiro-linkage. Further, the Examiner appears to be relying upon Grushin

for curing the deficiency of O'Brien or Baldo in view of Salbeck, since the Examiner contends that Grushin discloses TAZ and PBD. Applicants respectfully traverse this rejection.

While Applicants traverse this rejection, in order to advance the prosecution of this application, Applicants have amended independent Claim 5 to recite that the hole blocking layer comprises “spiro-TAZ (A indicates carbon)”, amended independent Claim 7 to recite that the hole blocking layer comprises “spiro-PBD (A indicates carbon)”, amended independent Claim 9 to limit for the hole blocking layer material that “A indicates silicon”, and amended independent Claim 11 to limit for the hole blocking material that “A indicates silicon.”

The present application discloses that the hole transport layer comprises spiro-NPD(NPB), the host material comprises spiro-CBP and the hole blocking layer comprises spiro-TAZ or spiro-PBD (A indicates carbon or silicon). With respect to the hole blocking layer, the present application discloses that

“...with respect to the BCP (molecular stability is low) as a hole blocking layer, even if spiro dimerization is merely made, molecular stability is not improved. Thus, ...with respect to BCP, the dimerization is not made but the BCP is replaced by another material having the same hole blocking property and high molecular stability.” Page 9, line 23 - page 10, line 2.

Further, the present application discloses that

“...with respect to the TAZ and the PBD, in order to increase T_g, it is preferable that the spiro dimerization is made. The present invention is characterized in that a spiro dimer of TAZ or a spiro dimer of PBD is used for an organic EL element capable of converting triplet excitation energy into light to be emitted...Note that, with respect to a spiro compound with silicon as spiro atom, an ionization potential tends to increase (HOMO level is decreased). Thus, change in an electrical characteristic can be seen. However, when such a spiro compound is used as a hole blocking layer, it is suitable. Therefore, with respect to the spiro dimer of TAZ and the spiro dimer of PBD, silicon may be used as spiro atom.” Page 10, lines 10-19.

Thus, in the claimed invention, spiro-TAZ or spiro-PBD of the hole blocking layer has an advantage of the same hole blocking property and high molecular stability for the organic EL element capable of converting triplet excitation energy into light to be emitted.

In contrast, there is no suggestion that a compound having a spiro-linkage is used for the hole blocking layer in Salbeck. Therefore, even if it were proper to combine the TAZ or PBD of Grushin with the hole blocking layer of O'Brien or Baldo (which Applicants do not admit is proper or that there is any motivation for such a combination), a hole blocking layer comprising spiro-TAZ or spiro-PBD, as in the claimed invention, still would not be obtained.

Furthermore, independent Claims 9 and 11 in the present application recite that the “A” of spiro-TAZ or spiro-PBD indicates silicon. In contrast, Salbeck discloses using only one additional carbon atom to connect by a spiro-junction (See 1. Introduction in Salbeck) and “the spiro-compound...due to the central spiro-carbon atom” (page 211, bottom right, emphasis added). Hence, there appears to be no disclosure or suggestion in Salbeck of a central silicon atom, as in Claims 9 and 11.

Further, even if Salbeck discloses spiro-PBD, spiro-TAD, spiro-CBP and the like, Salbeck does not disclose or suggest spiro-NPD(NPB) itself and spiro-TAZ itself. Therefore, even if it were proper to combine the references (which Applicants again do not admit), even when the cited references are combined, these claimed materials are not disclosed.

Accordingly, independent Claims 5, 7, 9 and 11 and those claims dependent thereon are not disclosed or suggested by the cited references and are patentable thereover. Therefore, it is respectfully requested that this rejection be withdrawn.

Conclusion

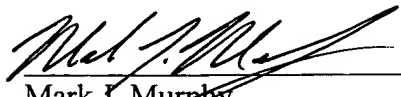
It is respectfully submitted that the present application is in a condition for allowance and should be allowed.

If any fee should be due for this amendment, please charge our deposit account 50/1039.

Favorable reconsideration is earnestly solicited.

Respectfully submitted,

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